



**CHPSO**

A division of the Hospital  
Quality Institute

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*Eliminating preventable harm  
and improving the quality of  
health care delivery*

# Peripheral IV infiltration and Extravasation (PIVIE)

## Safe Table Cases

# Case #1

# Solutions for Patient Safety Journey

- We are currently in a pioneer collaboration with Solutions for Patient Safety (which includes multiple hospitals).
- Looking at factors to reduce Grade 3 and 4 infiltrates, which then will turn into bundle elements.
- Only looking at inpatient units.
- Aim is to reduce Grade 3 and 4 infiltrates by 20% by December 2016.

# What are we looking at

- Tracking and monitoring Grade 3 and 4 infiltrates, the worst ones
- Hourly assessment and documentation of checking IV's
- Are we infusing the right medications through Peripheral IV's
- Are nurses performing TLC (*touch, look, compare*)
- Doing 30 real-time bedside audits a month asking/watching staff assess IV's
- Doing real-time assessment of IV infiltrates, asking the questions of why it might have happened
- Sharing data and results with units, hospital leadership



Every 60 minutes, we give our patients TLC – even when they're sleeping.

To ensure safety, a nurse will check your child's IV hourly – day and night.

**Call your child's nurse if:**  
The IV site is *wet / firm / hot / cold*  
Your child has *pain / numbness / redness / bruising*  
Or if you have any questions or concerns



TOUCH	LOOK	COMPARE	CHECK
 <p><b>Touch Hourly</b> IV Site should feel:</p> <ul style="list-style-type: none"> <li>• Pain free</li> <li>• Dry</li> <li>• Soft</li> <li>• Warm</li> </ul>	 <p><b>Look Hourly</b> IV Site should be:</p> <ul style="list-style-type: none"> <li>• Uncovered</li> <li>• Without Redness</li> <li>• Dry</li> </ul>	 <p><b>Compare Hourly</b> IV Site should be:</p> <ul style="list-style-type: none"> <li>• Same Size as Other Side</li> <li>• Without Swelling</li> </ul>	 <p>IV Checks must happen even when asleep</p> <ul style="list-style-type: none"> <li>• Call your nurse if you notice anything</li> </ul>

Adapted from Cincinnati Children's Hospital Medical Center's quality improvement project to reduce peripheral intravenous (PI) infiltration and extravasation events in a pediatric hospital

# Challenges

- **Staff not consistently checking IV's using Touch, Look, Compare**
- **Inconsistently in checking IV's every hour**
- **Not wanting to check IV's at night**
- **PIV infiltrates and management of infiltrates were being documented inconsistently in EHR**
- **Higher rate of infiltrates identified between the hours of 0600-1000 am**
- **Difficulty in identifying reasons IV infiltrates are happening, so trending issues is difficult**

# Case #2

# Story 1

**Patient admitted the hospital with complaints of shortness of breath and weakness related to a-fib with RVR requiring amiodarone. In a week the patient had the following:**

- **16G IV L AC infusing amiodarone, d/c'd due to infiltration**
- **18G IV L FA with LR + 20K, d/c'd due to unknown reason**
- **20G IV R FA d/c'd after 12 hours due to infiltration**
- **20G IV R FA with amiodarone lasted 36hrs till infiltration**
- **22G IV L FA lasting 18 hours till infiltrated**
- **22GIV R hand lasted 26 hours till infiltration**
- **22G IV R FA lasted 48 hours despite constantly leaking**

**Patient developed UE swelling and pain prompting an US showing an occlusive thrombus requiring heparin. There was no consideration for CL prior.**

## Story 2

**Patient was discharged from the hospital s/p aortic valve replacement and an aortic resection. Patient returned to the hospital 5 days later with complaint of increasing erythema and edema of the left forearm/AC. Patient on previous admission had an 18 G IV at the site where the complaints were located. US was obtained showing a VTE. Patient was hospitalized for 13 days for the VTE and development of cellulitis.**

# What is Risk Trigger Monitoring

Risk Trigger Monitoring is . . .

- ✓ A product of Pascal Metrics
- ✓ A Patient Safety Work Product
- ✓ A Patient Safety Organization
- ✓ A means to identify all harm and measure improvement
- ✓ Not maintained in the electronic health records



# What is a Trigger

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Medication  
Related

Patient  
Care

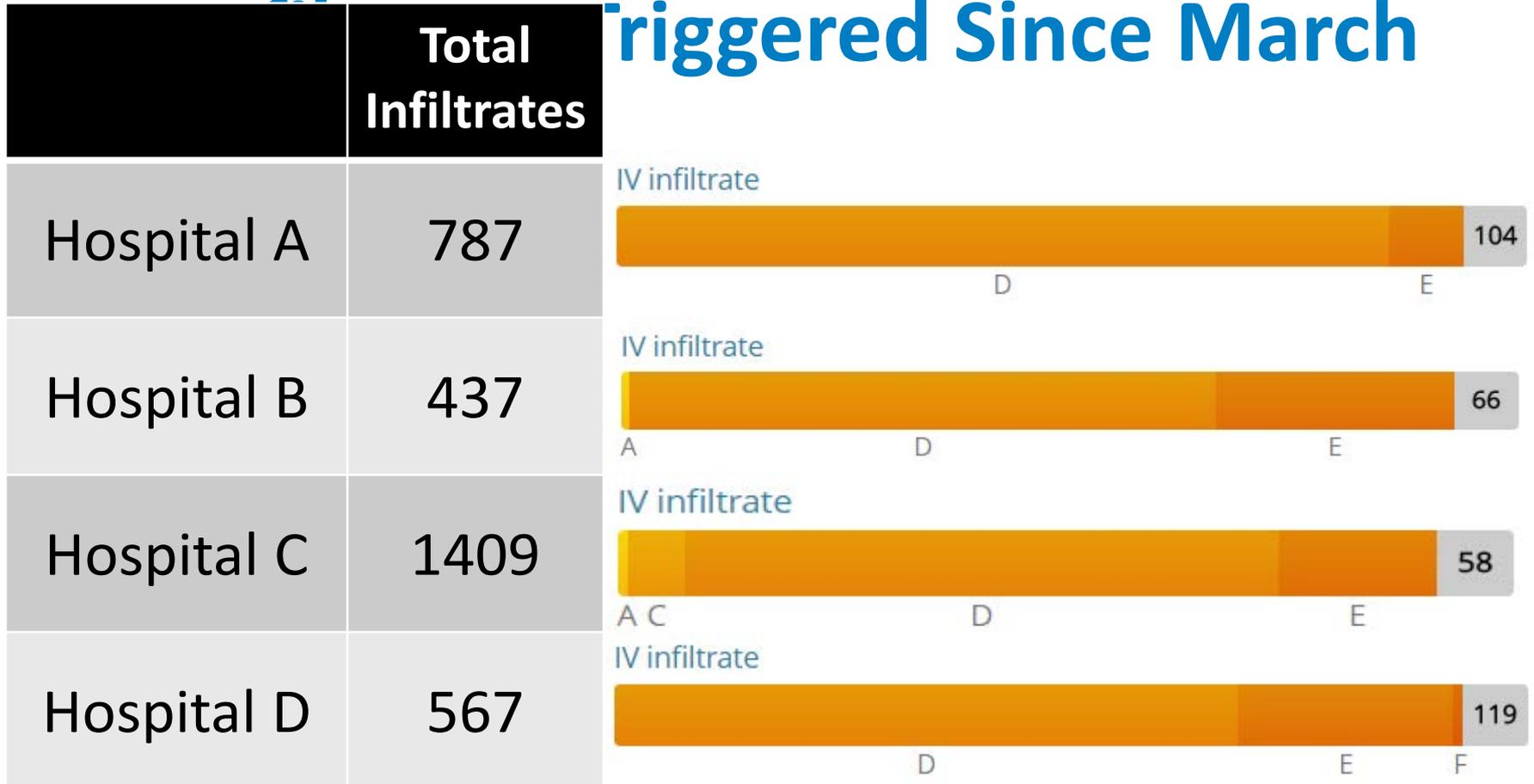
Surgical  
Events

Perinatal

HAI

- A Trigger is a warning sign that something might have occurred and should be reviewed
- A trigger does not automatically equate to harm
- Currently there are 66 triggers in place with an additional 10 being looked into for Maternal/Child
- Three triggers related directly to IV infiltrates that were instituted in late March

# Triggered Since March



# Commonalities

- **Lack of urgency to address the issue - common theme is that these are known complications and nothing can be done.**
- **Poor documentation/assessments**
  - RN not assessing the site for an entire 12 hour shift
  - RN's assessing the site at 0800 stating IV is patent only to note it is infiltrated at 0900 when first IV infusion of the day is hung up
  - Commonly placing IV's in areas that bend/move
  - Using large gauge IV's for medications that need small bore for dilution such as vancomycin and amiodarone
  - EHR is setup in a way to prime nurses to select the first item that shows up: infiltrated vs. occluded.